

CZECH/34-59-7-3/22

Contribution to the Methods of Stereometric Metallography.
Determination of the Number of Particles of the Disperse Phase
or the Number of Grains and Determination of their Size

differ from the real ones and the difference is dependent on the shape and dimensions of the particle, the distance from the plane of the polished section to the centre of the particle and in some cases also on the orientation of the particle relative to the polished plane. Equally, it is not possible to determine directly the number of particles per unit of volume and it is necessary to base the determination on the number of particles cut per unit of area of the polished plane. It is, therefore, necessary to find relations between the number, and respectively the distribution, of the sizes of the sections of the individual particles in the polished plane on the one hand and the number or the distribution of the real sizes of these particles on the other hand. The real shapes of the particles differ and, therefore, it is necessary to select in the investigations a shape for which the error will not be very large. In addition to geometrical considerations, it is necessary to take into account the theory of probability and ✓

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mathematical statistics due to the fact that the polished plane of the specimen will not cut through all the particles present in the body of the specimen. The author deals with the case for which the particles can be approximated adequately by spheres. In this case, the size of the particles is characterized by the diameter D . A number of papers have been published on the problem of spherical particles, the most important of these are the works of Scheil (Refs 1,2,3), Schwartz (Ref 4) and Saltykov (Ref 8). The Scheil-Saltykov solution is based on the following assumptions: the polished plane cuts through particles with the maximum diameter $D = D_m$ in their centre, so that the diameter of the maximum cut in the polished plane $d_{\max} = D_m$; the diameter of the particles D will assume a certain number k of values $D_1, D_2, \dots, D_k = D_m$, with uniform size differences; for Card 3/6 each of these values D_i the following relation applies:

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$$\lambda_{D_i} = D_i N_{D_i} \quad i = 1, 2, \dots, k \quad (1.1)$$

where N_{D_i} is the number of particles of the diameter D_i
per unit of volume and λ_{D_i} is the number of circular

cross-sections per unit of area in the polished plane
resulting from cutting the particles of the size D_i .
The author has found that the Scheil-Saltykov solution
is a suitable method for obtaining an approximate solution
of the problem of distribution of the sizes of particles
even if the diameter of the particles is a "communicating"
variable. The approximation lies in the fact that the
variable values of D are substituted within a certain
range by the upper limit of the value D in this range.
In addition to the upper limit, the mean value can also
be considered. If not the distribution of the particle
sizes is sought but one of the magnitudes characterizing
the spatial structure of the specimen (average particle

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number, average diameter, average surface, average volume,
total surface or total volume, variation coefficient),
these magnitudes can be expressed by means of the moments
of the cut diameters d and the average number of cuts n
per unit of area of the polished cut of the specimen by
using the generally valid relation (3.3) proposed by
S. D. Wicksell. If a certain analytical form of the
frequency function of the particle diameters D is
assumed, this can be utilised for expressing individual
parameters of the spatial distribution of the particles.
The author determined the average number of particles N
per unit of volume of the specimen, the average diameter
of the particles D_0 and the coefficient of size variation
for the case of logarithmically normal distribution of the
particle diameters as expressed by Eq (4.4), proposed by
Drápal and Horálek (Ref 13). The applied relations do not
necessitate calculation of the parameters of the
logarithmically normal distribution of ξ and σ since

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CZECH/34-59-9-9/22

AUTHORS: Dufek, Vladimír, Engineer and Likes, Jirí, Engineer

TITLE: Analysis of the Influence of Addition Carbides on the Properties of High Cobalt Content Sintered Carbides of the System WC-Co Using Mathematical Statistics Methods

PERIODICAL: Hutmické listy, 1959, Nr 9, pp 791-796

ABSTRACT: The authors carried out experiments aimed at elucidating the influence of TaC and Cr₃C₂ additions on the properties of WC-Co systems with cobalt contents of 15 to 30% (types G3 and G6). To prevent incorrect interpretation, the authors made use of mathematical statistics taking into consideration differences in the original raw materials in addition to differences in the quantities of TaC and Cr₃C₂. The quantity of Cr₃C₂ in the main tests (0.75%) was based on results of preliminary tests. The authors emphasize that the application of mathematical statistics is useful for working out the plans of the experiments. For carrying out the full factorial experiment of the type 2⁶, 64 tests would have been necessary. However, the authors used a shortened series of tests involving only sixteen combinations. The pilot plant scale tests showed that the favourable influence of TaC

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Analysis of the Influence of Addition Carbides on the Properties
of High Cobalt Content Sintered Carbides of the System WC-Co
Using Mathematical Statistics Methods

observed earlier for S and G1 type carbides also pertains
to G type carbides in the case of higher cobalt contents.
There are 3 figures, 3 tables and 15 references, 8 of
which are Czech, 1 Soviet and 6 English.

ASSOCIATIONS: VÚPM and VÚHŽ

SUBMITTED: February 21, 1959

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Card 2/2

LIKES, J.
MAZANEC, K.
CADEK, J.

"Use of the statistical method in the study of the isothermal decomposition of austenite."

HUTNICKE LISTY. Brno, Czechoslovakia, Vol. 14, March 1959.

Monthly List of East European Accessions (EEAI), LC, Vol. 8, No. 8, September 1959.
Unclassified.

OSIPOVA, Ye.N.; LIKESH, Yar.; KEL'MAN, B.M.

Evaluating the performance of fluidization kilns. Trudy LTI
no.54:129-13⁴ '59. (MIRA 13:8)
(Fluidization--Equipment and supplies)

18.7100

69769

Z/034/60/000/04/005/028
E073/E535

AUTHORS: Mazanec, Karel, Engineer, Candidate of Technical Sciences
(Výzkumný ústav VZKD, Ostrava), Cadek, Josef, Engineer,
Candidate of Technical Sciences, Líkés, Jiří, Engineer
(Výzkumný ústav hutnictví železa, Praha)

TITLE: Influence of Nickel¹ on the Speed of Formation of
Germinations and on the Speed of Growth of Hypoeutectoidal
Ferrite¹

PERIODICAL: Hutnické listy, 1960, Nr 4, pp 282-287

ABSTRACT: Earlier work by the authors of this paper (Refs 1,2)
relating to the influence of W on the kinetic parameters
showed that in the case of high degrees of super-cooling
the speed of growth of the ferrite is controlled by the
diffusion of carbon in the austenite. Therefore the
authors considered it of interest to obtain information
on the influence of nickel, an element which does not
form carbides in steel. For the investigations two
steels were used of the following compositions:
Steel A: 0.27% C, 0.26% Mn, 0.25% Si, 0.033% P, 0.026% S,
0.14% Cu, 0.04% Ni, 1.0% Cr;
" B: 0.31% C, 0.33% Mn, 0.25% Si, 0.033% P, 0.024% S,
0.16% Cu, 1.17% Ni, 1.03% Cr.

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Influence of Nickel on the Speed of Formation of Germinations and
on the Speed of Growth of Hypereutectoidal Ferrite

These steels were produced in a 40 kg capacity high frequency furnace and cast into ingots which were then forged into rods of 20 mm dia. Prior to manufacture the samples were subjected to sphereodisation annealing for 4 hours at 700°C. Specimens of 10 x 10 x 2 mm were homogenization annealed in special ampoules without access of air for the duration of one week at 1050°C. Following that the specimens were electrolytically coated with a chromium layer about 0.03 mm thick, to prevent decarburization. Austenization was effected at 1100°C for 10 minutes in a vertical tubular furnace inside a protective argon atmosphere. On the basis of the obtained results it is concluded that:

- 1) Nickel reduces considerably the speed of ferrite growth, particularly at high degrees of supercooling (700° to 650°C). The influence of nickel on the speed of formation of germinations could not be determined.
- 2) The speed of ferrite growth in the range of high degrees of supercooling is obviously controlled by the speed of carbon diffusion in the austenite since the

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Influence of Nickel on the Speed of Formation of Germinations and
on the Speed of Growth of Hypereutectoidal Ferrite

obtained activation energy of the growth (31 000 cal/mol
for the steel A and 26 700 cal/mol for the steel B)
approaches the activation energy of the diffusion of
carbon in the austenite.

3) An analysis was made of the isothermal ferritic reaction
and the activation energy of this reaction was determined.
The obtained values of the activation energy (37 500 cal/mol
for steel A and 35 000 cal/mol for steel B) lead to the
conclusion that the speed of diffusion of C in the
austenite probably controls not only the speed of growth
at high degrees of supercooling but also the entire
kinetics of the ferritic reaction.

There are 13 figures, 2 tables and 11 references, 3 of
which are Czech, 4 Soviet and 4 English.

ASSOCIATIONS: Výzkumný ústav VŽKG, Ostrava (Research Institute
VŽKG, Ostrava) and Výzkumný ústav hutnictví železa, Praha
(Ferrous Metallurgy Research Institute, Prague)

SUBMITTED: June 27, 1959

Card 5/3

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Z/034/60/000/08/006/030

E073/E335

AUTHORS: Likšs, Jiří, Čadek, Josef, Mazanec, Karel and
Kudělková, Jarmila

TITLE: Contribution to the Methods of Stereometric Metallography.
Part III. Method of Determining the Number of and the Size
of Disc Particles to Disperse Phase

PERIODICAL: Hutnické listy, 1960, Nr 8, pp 615 - 619

ABSTRACT: Methods of quantitative evaluation of the microstructure of metals and alloys are gaining in importance in the study of phase transformations. The kinetics of the majority of such transformations can be described by two kinetic parameters, the speed of formation of the nuclei and the speed of growth of a new phase. Measurement of these parameters is based on using statistical methods of microstructural analysis. One of the most important tasks is determining the number of particles in the new phase per unit of volume of the specimen and the real (three-dimensional) size of these particles on the basis of the number and size of intersections of particles per unit of area of a polished specimen or on the basis of the length and the number of segments created by the

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E073/E335

Contribution to the Methods of Stereometric Metallography.
Part III. Method of Determining the Number of and the Size of
Disc Particles to Disperse Phase

intersection of particles of a polished specimen with lines drawn at random in the plane of the polished specimen. Such particles can have a variety of shapes, i.e. they can be spherical, cylindrical, acicular, disc-shaped, etc. In earlier papers (Refs 1,2), one of the authors dealt with spherical particles. For studying martensitic and bainitic reactions it is important to develop a method of determining the number of disc-shaped particles. In this paper, the authors solved this problem for the case of particles of equal size with a random distribution and random orientation in the body of the specimen. Expressions are derived for the average number of particles per unit of volume and for the size of the particles k , D whereby all the expressions depend on the average number of intersections n per unit of area of the polished plane of the specimen, the average number of intersections n' per unit of length of longitudinally-drawn straight lines and on χ

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Contribution to the Methods of Stereometric Metallography.
Part III. Method of Determining the Number of and the Size of
Disc Particles to Disperse Phase

estimating the value of p , the volume part of the phase α . The value of k is then determined by interpolation from tabulated $\varphi(k)$ values. In the experimental part of the paper, comparison is made between the average \bar{F} of the areas of the polished sections measured and the theoretically determined value $E(f)$. Finally, the theoretically derived relations are used for determining the number and size of bainite particles. The here described method enables direct measurement of the kinetic parameters of proceeding isothermal, martensitic and, particularly, bainitic reactions. Acknowledgments are expressed to V. Kejha, VUH \check{Z} , for his assistance in carrying out measurements on the polished specimens and to J. Kazdova, VUH \check{Z} , for her assistance in carrying out calculations. There are 5 figures, 4 tables and 13 references, of which 5 are Czech, 7 are English and 1 is Soviet.

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Z/034/60/000/08/006/030

E073/E335

Contribution to the Methods of Stereometric Metallography.
Part III. Method of Determining the Number of and the Size of
Disc Particles to Disperse Phase

ASSOCIATIONS: Výzkumný ústav hutnictví železa, Praha
(Ferrous Metallurgy Research Institute, Prague)
Výzkumný ústav, VZKG, Ostrava (Research Institute,
VZKG, Ostrava)

SUBMITTED: August 25, 1959

Card 4/4

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LIKES, JIRI

Distr: 4E2c(m)

Influence of nickel on the speed of nucleus formation and of hypoeutectoid ferrite growth¹ Karel Mazanec (Výzkumný ústav VŽKG, Ostrava, Czech.), Josef Čadek, and Jiří Likes. *Hlavné haly* 15, 282-7 (1960). Influence of Ni on the speed of nucleus formation and of hypoeutectoid ferrite growth was investigated on two steels contg. C 0.30; Mn 0.30; Si 0.25 and Cr 1.0, and Ni 0.04 or 1.17%. Ni decreases the speed of ferrite growth, especially at greater undercooling (700-650°). The speed of ferrite growth is, in the zone of great undercooling, obviously controlled by the speed of C diffusion in austenite. The analysis of the course of isothermal ferritic reaction was carried out and the activation energy of this reaction was determined. The activation energy (37,000 cal./mole for steel A and 35,000 for steel B) lead to the conclusion that the speed of C diffusion in austenite controls probably not only the speed of growth at greater undercooling, but the whole kinetics of the ferritic reaction. Petr Schneider

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1-mgc(gD)
1-mgc(L)
P

LIKESH, I.; CHADEK, I.

Calculating the distribution of a quantity of spherical particles
or grains in alloys. Zav.lab. 27 no.5:565-568 '61. (MIRA 14:5)

1. Nauchno-issledovatel'skiy institut chernoy metallurgii,
Chekhoslovakija.
(Alloys--Metallography)

Z/026/62/007/004/004/004
D407/D301

AUTHOR: Likes, Jiří

TITLE: Determining mean particle sizes in metal and alloy textures

PERIODICAL: Aplikace matematiky, v. 7, no. 4, 1962, 315-323

TEXT: The article, mostly based on Western sources, deals with metallo-graphical analyses where mean sizes of spherical particles in a dispersed phase have to be determined. While mean grain sizes were sofar estimated by the moments method, this paper derives the confidence limits for the case where particle sizes have logarithmic-normal distribution. It is assumed that a large number of spherical particles, which have a diameter ξ , are randomly distributed in the specimen, and that ξ is a complex random variable which assumes values $x > 0$ and whose probability-density function $f(x)$ is unknown. Since metal specimens are nontransparent, direct measuring of ξ is impossible, and a plane section is used, where k circular cross-sections of particles are selected at random and

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D407/D301

Determining mean particle sizes ...

their diameter η is determined. The random variable η now assumes values $y > 0$, and its probability-density function is designated $g(y)$. In case the random variable ξ has a finite mean value $E(\xi)$, and particles in the specimen are distributed at random, densities $g(y)$ and $f(x)$ are relative:

$$g(y) = \frac{y}{E(\xi)} \int_y^{\infty} \frac{f(x)}{\sqrt{x^2 - y^2}} dx, \quad y > 0. \quad (1)$$

At a sufficiently large number of k , the mean size of particles can be estimated

$$E(\xi) \approx \frac{\pi}{2} \frac{1}{m'_{-1}(y)} \quad (5)$$

where $m'_{-1}(y)$ is the unbiased estimate of $E(\eta^{-1})$. The confidence limit for $E(\xi)$ at the confidence level $1 - \alpha$ is then given by the relations

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D407/D301.

Determining mean particle sizes ...

$$E_i(\xi) = \frac{1}{1 + V^2(\xi)} \frac{4\sqrt{3k}}{\pi \sqrt{3k + u_\alpha \sqrt{32[1 + V^2(\xi)] - 3\pi^2}}} \quad (27)$$

and

$$\begin{cases} P\{\bar{\eta} E_{1-\alpha}(\xi) < E(\xi) < \bar{\eta} E_\alpha(\xi)\} \approx 1 - \alpha, & 0 < \alpha_1, \alpha_2 < 0.5; \alpha_1 + \alpha_2 = \alpha, \\ P\{E(\xi) < \bar{\eta} E_\alpha(\xi)\} \approx 1 - \alpha, & 0 < \alpha < 1, \\ P\{E(\xi) > \bar{\eta} E_{1-\alpha}(\xi)\} \approx 1 - \alpha, & 0 < \alpha < 1. \end{cases} \quad (28)$$

where $\bar{\eta}$ is the average diameter of the k randomly selected cross-sections, $V(\xi)$ is the coefficient of variation of particle diameter ξ , and u_α is the $100\alpha\%$ quantile of a normal distribution with 0 mean and standard deviation. Instead of the diameter of circular cross-sections η , one may base the calculation on the length of segments ξ , determined on a system of lines, randomly located in the cut of the specimen by the intersections with particle boundaries. For a large number n of such segments, the confidence limit at the confidence level $1 - \alpha$ is given by the relations

$$E(\xi^s) < \bar{\xi}^s E_\alpha^s(\xi^s), \quad s \geq 1, \quad (33'')$$

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D407/D301

Determining mean particle sizes ...

and

$$E_c'(\xi) = \frac{1}{[1 + V^2(\xi)]^2} \frac{3\sqrt{2n}}{2\sqrt{2n} + u_\xi \sqrt{9[1 + V^2(\xi)] - 8}} \quad (35)$$

for $s = 1$, where $\bar{\xi}$ is the average length of the n segments. The estimates of the coefficient of variation $V(\xi)$, arrived at by the moments method, are

$$V(\xi) \approx \sqrt{\frac{3\pi^2}{32} v^2(y) - \frac{32 - 3\pi^2}{32}}, \quad (38)$$

$$V(\xi) \approx \frac{1}{3} \sqrt{8v^2(z) - 1}, \quad (39)$$

which are likewise used at large k or n respectively, when $V(\xi)$ is unknown. The article is concluded by a practical example computing the mean size of carbide particles randomly distributed in a steel specimen.

ASSOCIATION: Vysoká škola ekonomická (Economics College)

SUBMITTED: May 4, 1961

Card 4/4

LIKES, Jiri

Determining the size of medium particles in the structure of metals
and alloys. Aplikace mat 7 no.4:315-323 '62.

1. Vysoka skola ekonomicka, Praha 3 - Zizkov, namesti G. Klimenta 4.

"APPROVED FOR RELEASE: 07/12/2001

CIA-RDP86-00513R000929910012-8

ZDENEK, Z., inz.; KECLIK, V.; DEDEK, Vlad., inz.; KRUMNIKL, Fr., inz.;
VYSTYD, M.; JENICEK, L.; LIKES, Jiri; HRANOS, Zd., inz.

Informations on metallurgy. Hut listy 16 no.3:217-227 Mr '61.

APPROVED FOR RELEASE: 07/12/2001

CIA-RDP86-00513R000929910012-8"

LIKES, Jiri, inz.; MAZANEC, Karel, inz., kandidat technickych ved

Contribution to the methods of determining the interlamellar distance
of perlite. Hut listy 16 no.6:417-420 Je '61.

1. Vyzkumny ustav hutnického zeleza, Praha (for Likes). 2. Vyzkumny
ustav, Vitkovice zelezarny Klementa Gottwalda, Ostrava (for Mazanec).

LIKES, J.

On the problem of particle number and size determination in
opaque bodies. Acta techn Hung 42 no.4:325-360 '63.

1. Research Institute of Iron Metallurgy, Praha.

LIKES, Jiri

Determination of the number and size of dispersion phase
particles by methods of quantitative metallurgy. Roz-
pravy techn. ČSAV '74 no. 1:1-68 16L

LIKEVICH, V. R., Cand. Medic. Sci. (diss) "Development of Inner-vation of Female External Sex Organs," Voronezh, 1961, 16 pp. (Voronezh Med. Inst.) 200 copies (KL Supp 12-61, 286).

IVANAUSKAS, Tadas; LIKEVICIENE, Natalija; MALDZIUNAITE, Stase;
PABREZIENE, A., red.

[A guide to Lithuanian mammals] Vėdovas Lietuvos
zinduoliams paz'nti. Vilnius, Valstybine politines ir
moksline lit-ros leidykla, 1964. 339 p. [In Lithuanian]
(MIRA 17:5)

LIKACHEV, A.A., kandidat tekhnicheskikh nauk.

Development of continuous small-lot production is the most
urgent aim of the machinery industry. Machinostroitel' no.3:1-5
Mr '57. (MLRA 10:5)
(Machinery industry)

"APPROVED FOR RELEASE: 07/12/2001

CIA-RDP86-00513R000929910012-8

LIKHACHEV, A.A.

Problems in generating gears. Priborostroenie no. 5:12-15 My '57.
(Gearing) (MLRA 10:6)

APPROVED FOR RELEASE: 07/12/2001

CIA-RDP86-00513R000929910012-8"

Likhachev, A.A.

Likhachev, A.A., kandidat tekhnicheskikh nauk.

Standard technological processes as a base for continuous small-lot production and for indicating workpiece producibility. Vest.mash.
37 no. 2. 57-61 S '57. (MIRA 10:9)
(Machinery industry)

LIKHACHEV, A. A. (Cand. Tech. Sci.); FELIKSON, Ye. I. (Cand. Tech. Sci.); GRIGOR'YEV, B. V. (Cand. Tech. Sci.); SHNEYDER, Yu. G. (Cand. Tech. Sci.); and GORYSHIN, V. V. (Eng.)

XIV. "Examples of Mechanization and Automation of Instrument-parts manufacturing Processes," Automation and Mechanization of Production Processes in Instrument Manufacturing, Moscow, Mashgiz, 1958. 591 p.

PURPOSE: This book is intended for engineers, technicians, and scientific personnel concerned with mechanization and automation of production processes in instrument manufacturing, and for students and teachers of this subject in vuzes.

MALAKHOVSKIY, Yu.Ye.; LIKHACHEV, A.A.

Essential pulmonary hemosiderosis simulating hemolytic anemia.
Probl. gemat. i perel. krovi no.10:46-48 '63 (MIRA 18:1)

1. Iz detskogo otdeleniya (zav. L.I. Karabak) i patologoanatomicheskogo otdeleniya (zav. A.A. Likhachev) Kemerovskoy oblastnoy bol'nitsy (glavnnyy vrach Ye.P. Nechayeva).

LIKHACHEV, A.A.

Primary diffuse melanoma of the soft meninges of the cephalic and upper cervical part of the spinal cord. Zhur. nevr. i psich. 65 no.6:814-816 '65. (MIRA 18:6)

I. Kafedra patologicheskoy anatomi (zaveduyushchiy - doksent V.A. Bakhtiyarov) Kemerovskogo meditsinskogo instituta.

TATISHCHEV, S.V., LIKHACHEV, A.D,

Determination of the heat loss resulting from an incomplete
chemical combustion of natural gas and fuel oil, as shown by
the results of gas analysis. Gaz.prom. 5 no.2:32-34 F '60.

(MIRA 13:6)

(Waste heat) (Gases--Analysis)

TATISHCHEV, S.V.; LIKHACHEV, A.D.; DVORETSKIY, A.I.

Hearth burners with covered breasts for natural gas firing.
Prom.energ. 17 no.1:25-29 Ja '62. (MIRA 14:12)
(Gas, Natural)
(Boilers)

S/081/62/000/023/088/120
B144/B186

AUTHORS: Likhachev, A. D., Kirsanov, V. I.

TITLE: Chromatographic analysis of the products of the incomplete combustion of fuels

PERIODICAL: Referativnyy zhurnal. Khimiya, no. 23, 1962, 597, abstract 23M231 (Novosti neft. i gaz. tekhn. Gaz. delo, no. 3, 1962, 59 - 65)

TEXT: The XT-2M (KhT-2M) chromatograph designed for the analysis of gaseous mixtures of saturated and unsaturated hydrocarbons was used to analyze the products obtained in the incomplete combustion of natural gas as to their content of H_2 , CO and CH_4 . In the method described for the analysis of the products of incomplete combustion of natural gas, activated carbon АГ-5 (AG-5) ground to 0.2 - 0.3 mm is used as sorbent in a column 3.5 mm in diameter and 480 cm long, the carrier gas is air, and the analysis is carried out at $\sim 20^{\circ}C$. The analytical results stated indicate the accuracy of the determination. [Abstracter's note: Complete translation.]
Card 1/2

LIKACHEV, A.D.

Chromatographic determination of carbon monoxide and oxygen in the
products of fuel combustion. Zav.lab. 29 no.11:1302-1304 '63.
(MIRA 16:12)

1. Moskovskiy tekstil'nyy institut.

LIKHACHEV, A.G.,

Medicine

Textbook of diseases of the ear, nose and throat.
Moskva, Medgiz, 1946.

Monthly List of Russian Accessions, Library of Congress, April 1952. UNCLASSIFIED.

PA 42/49T72

LIKHACHEV, A. G.

USSR/Medicine - Otorhinolaryngology Mar/Apr 49
Medicine - Literature, Medical

"Review of 'Collection of USSR Medical Data,'"
Prof A. G. Likhachev, 1 p

"Vest Oto-Rino-Laringol" Vol XI, No 2

Favorable review of subject reference book,
which contains annotations, reviews or bibliographies
of all Soviet scientific medical literature published since 1 Jan 47.

42/49T72

LIKHACHEV, A. G.; PREOBRAZHENSKIY, B. S.; TEMKIN, I. S.

Bolezni Ukrta Nosa i Gorla (Diseases of Ear, Nose and Throat), 483 p., Medgiz,
Moscow, 1950.

"APPROVED FOR RELEASE: 07/12/2001

CIA-RDP86-00513R000929910012-8

LIKACHEV, A.G.; TEMKIN, I.S.

Otorhinolaryngology in relation to the increased 6 year course of
medicine. Vest. otorinolar. No.3:11-21 May-June 50. (CLML 19:4)

APPROVED FOR RELEASE: 07/12/2001

CIA-RDP86-00513R000929910012-8"

LIKHACHEV, A.G.

General review and methods of tissue therapy. Vest. otorinolar.,
Moskva 14 no.1:3-14 Jan-Feb 52. (CIML 21:4)

1. Professor. 2. Moscow.

Likhachev, A. G.

AGEYeva-MAYKOVA, O.G.; VOYACHEK, V.I.; YERMOLAYEV, V.G.; KULIKOVSKIY, G.G.; LIKHACHEV, A.G.; NEYMAN, L.V.; RASPOPOV, A.P.; SUPRUNOV, V.K.

Boris Sergeevich Preobrazhenskii; 60th anniversary of birth. Vest. otorinolar., Moskva 14 no. 3:97-100 May-June 1952. (CLML 22:4)

1. Preobrazhenskiy is editor of Vestnik oto-rino-laringologii and attached to the Therapeutic Sanitary Administration for the Kremlin. Is Active Member of the Academy of Medical Sciences USSR. Awarded Order of Lenin in 1943. Is Chairman of the Administration of the All-Union Society of Otolaryngologists.

LIKACHEV, A. PROF., TIKHOMIROVA, G.

Otorhinolaryngology

Report of the governing Board of the All-Union Scientific Otolaryngological Society on the 1950-1951 activities. Vest. oto-rin., 14, No. 5, 1952.

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LIVACHEV, A. G.

Tkanevaia terapiia [Tissue therapy] Moskva, Medgiz, 1953. 72 p.

SO: Monthly List of Russian Accessions, Vol. 6 No 10 January 1954

PREOBRAZHENSKIY, N.A.; LIKHACHEV, A.G., professor, direktor.

Effect of chronic tonsillitis on the course of thyrotoxicosis. Vest. oto-rin.
15 no.4:46-51 Jl-Ag '53. (MLRA 6:9)

1. Klinika bolezney ucha, gorla i nosa I Moskovskogo ordena Lenina meditsinskogo instituta (for Likhachev). 2. Vsesoyuznyy institut eksperimental'noy endokrinologii. (Thyroid gland--Diseases) (Tonsils--Diseases)

TSIRISHKIN, B.D., kandidat meditsinskikh nauk; LIKHACHEV, A.G., professor, direktor.

Method of audiometry. Vest.oto-rin. 15 no.4:69-72 J1-4g '53. (MLRA 6:9)

1. Klinika bolezney ukh, gorla i nosa I Moskovskogo ordena Lenina meditsinskogo instituta.
(Hearing)

GRIG, M.G.; LIKHACHEV, A.G., professor, direktor.

Structure of supratonsillar space. Vest.oto-rin. 15 no.5:55-59 S-O '53.
(MLRA 6:11)

1. Klinika bolezney ukha, gorla i nosa 1 Moskovskogo ordena Lenina meditsinskogo instituta.
(Tonsils)

LIKHACHEV, A.G.; TIKHOMIROVA, O.I.

Report of the All-Union Scientific Society of Otolaryngologists for 1952.
Vest.oto-rin. 15 no.5:82-93 S-0 '53. (MLRA 6:11)
(Otorhinolaryngology--Societies)

LIKACHEV, A.G., professor (Moskva)

Clinical aspects of cancer of the nasopharynx. Vest.oto-rin.
16 no.2:13-19 Mr-Ap '54. (MLRA 7:6)
(NASOPHARYNX, neoplasms,
*clin. aspects)

LIKHACHEV, A.G.; TIKHOMIREVA, G.I.

Report of the executive committee of the All-Union Scientific
Society of Otolaryngologists for the year 1953. Vest. oto-rin.
16 no.6:81-90 N-D '54. (MLRA 8:1)
(OTORHINOLARYNGOLOGY
in Russia, society report)

LIKHACHEV, A.G.

[Otorhinolaryngology] Oto-rino-laringologiia, Moskva, 1955.
40 plates. (MLRA 9:7)
(OTORHINOLARYNGOLOGY)

LIKACHEV, A.G.

[Ear, throat, and nose diseases] Belezni ukha, ggorla i nosa. Meskva,
Medgiz, 1955. 262 p. (MLRA 9:4)
(OTORRINOLARYNGOLOGY)

LIKHACHEV, A.G., professor, TIKHOMIROVA, G.I., kandidat meditsinskikh
naук.

Initiation of the teaching of otorhinolaryngology in Russia
and creation of the clinic of diseases of the ear, throat and
nose at the University of Moscow. Vest.oto-rin 17 no.3:3-14
My-Je '55.

1. Iz kliniki bolezney ukha, gorla i nosa (dir.prof. A.G.
Likhachev) I Moskovskogo ordena Lenina meditsinskogo instituta.
(OTOHRINOLARYNGOLOGY, history
in Russia, teaching & clinic at university of Moscow)
(BIOGRAPHIES
Shtein, Stanislav F.

LIKACHEV, A.G., professor; TIKHOMIROVA, G.I., kandidat meditsinskikh nauk.

Report on the activities of the Scientific Society of Otorhinolaryngologists in 1954. Vest. oto-rin. 17 no.6:78-89 N-D '55. (MLRA 9:2)

(OTORHINOLARYNGOLOGY - SOCIETIES)

LIKACHEV, A.G., professor; TIKHOMIROVA, G.I., kandidat meditsinskikh nauk

Report of the All-Union Society of Otorhinolaryngologists for 1955.
Vest.oto-rin. 18 no.5:79-91 S-O '56. (MLRA 9:11)
(OTORHINOLARYNGOLOGY—SOCIETIES)

VELIKORETSKIY, Abram Nikolayevich; LIKHACHOV, Andrey Gavrilovich

[Surgery in otorhinolaryngology] Bol' kirurzhikale shi bol'
de nes, gyt, urek'. Kishineu, Editura de Stat a Moldovei,
1957. 126 p.

(MIRA 12:11)

(OTOLARYNGOLOGY)

(SURGERY)

Likhachev, A.G.

ARUTYUNOV, V.Ya., prof.; BERKOVICH, I.M., doktor med.nauk; BUNIN, K.V., prof.
VELIKORETSKIY, A.N., prof.; GAMBURG, R.L., doktor med.nauk; GLASKO,
N.M.; ZVYAGINTSEVA, S.G., doktor med.nauk; IVANSKAYA, A.M., kand.med.
nauk; KALUGINA, A.N., kand.med.nauk; KAMINSKAYA-PAVLOVA, Z.A., prof.
KVATER, Ya.I., prof.; KOLEN'KO, A.B., prof.; KOSSYURA, M.B., kand.
med.nauk; KRAVETS, E.M., doktor med.nauk; KRISTMAN, V.I., kand.med.
nauk; KRUZHKOVA, V.A., dotsent; LIKHACHEV, A.G., prof.; LUKOMSKIY, I.G.,
prof.; MASHKOVSKIY, M.D., prof.; ROZENTAL', A.S., prof.; SERVYSKIY,
M.Ya. [deceased], prof.; TURETSKIY, M.Ya., kand.med.nauk; KHESIN,
Ye.Ye., dotsent; SHABINA, Kh.L., kand.med.nauk; SHABANOV, A.N., prof.;
red.; BONDAR', Z.A., red.; ZAKHAROVA, A.I., tekhn.red.

[Medical handbook for feldshers] Meditsinskii spravochnik dlia
fel'dsherov. Izd. 6-ee, perer. i dop. Moskva, Gos. izd-vo med.
lit-ry, 1957. 899 p. (MIRA 10:12)
(MEDICINE--HANDBOOKS, MANUALS, ETC.)

LIKHACHEV, A.G., prof. (Moskva)

The 40th anniversary of Soviet otorhinolaryngology [with summary
in English]. Vest. oto-rin. 19 no.5:3-27 S-0 '57. (MIRA 10:11)
(OTORHINOLARYNGOLOGY, hist.
in Russia)

Likhachev, A.G.

LIKHACHEV, A.G., prof. (Moskva)

"Mistakes in the diagnosis of anginas" by B.S.Preobrazhenskii.
Reviewed by A.G.Likhachev. Klin.med. 35 no.7:154-155 J1 '57.
(THROAT--DISEASES) (MIRA 10:11)

LIKACHEV, A.G.

[Diseases of ear, throat, and nose] Bolezni ucha, gorla i nosa.
Izd.2. Moskva, Medgiz, 1958. 274 p. (MIRA 11:9)
(OTORHINOLARYNGOLOGY)

LIKHACHEV, A.G., prof.; PNEOBRAZHENSKIY, N.A., kand.med.nauk

Stapes mobilization in otosclerosis. Vest. otorin. 20 no.2:
85-101 Mr-Ap '58. (MIRA 12:11)

1. Iz kliniki bolezney ucha, gorla i nosa (dir. - prof.A.G.
Likhachev) I Moskovskogo meditsinskogo instituta.
(OTOSCLEROSIS, surg.
stapes mobilization, review (Rus))

LIKACHEV, A.G., prof., TIKHOMIROVA, G.I., kand.med.nauk

Report on the activity of the administration of the All-Union
Medical Society of Otorhinolaryngologists from 1935-1958.
Vest.oto-rin. 20 no.5:135-138 S-O '58 (MIRA 11:12)
(OTORHINOLARYNGOLOGY)

"APPROVED FOR RELEASE: 07/12/2001

CIA-RDP86-00513R000929910012-8

LIKHACHEV, A.G., prof..

All-Union Conference on Noise Control. Vest.oto-rin. 20 no.5:1^{1/2}-1^{1/2}
S-O '58 (MIRA 11:12)

(NOISE)

APPROVED FOR RELEASE: 07/12/2001

CIA-RDP86-00513R000929910012-8"

LOPOTKO, I.A.; UNDRITS, V.F.; PREOBRAZHENSKIY, B.S.; KHILOV, K.L.; LIKHACHEV,
A.G.; SENDUL'SKIY, I.Ya.; MIL'SHTEYN, T.N.; GRINBERG, G.I.; ROMM, S.Z.

Basic problems in Soviet otorhinolaryngology; on the 1960 working
plan for research in the Academy of Medical Sciences of the U.S.S.R.
Vest. otorin. 21 no.5:3-14 S-0 '59. (MIRA 13:1)
(OTORHINOLARYNGOLOGY)

VOL'FKOVICH, M.I., prof.; USOL'TSEV, N.N., prof.; TIKHOMIROVA, G.I.,
kand. med. nauk; LIKHACHEV, Andrey Gavrilovich, prof.,
zasl. deyatel' nauki, red.; VOLKOV, V.A., red.; MOLOGIN, V.N.,
red. GUDENINA, T.Ye., tekhn. red.

[Instructions for practical studies in otorhinolaryngology for
medical institutes] Metodicheskie zapiski k prakticheskim za-
niatijam po otorinolaringologii; dlja meditsinskikh institutov.
Moskva, 1960. 73 p. (MIRA 15:3)

1. Moscow. Pervyy meditsinskiy institut.
(OTORHINOLARYNGOLOGY--STUDY AND TEACHING)

LIKACHEV, A.G., prof., zasluzhenny deyatel' nauki

The 25th anniversary of the death of Professor Aleksandr Fedorovich Ivanov. Zhur. ush., nos. i gorl. bol. 20 no.5:76-77 S-O '60.
(MIRA 14:6)

(IVANOV, ALEKSANDR FEDOROVICH, 1867-1935)

LOPOTKO, I.A.; UNDRITS, V.F.; PREROBRAZHENSKIY, B.S.; KHILOV, K.L.;
SENDUL'SKIY, I.Ya.; LIKHACHEV, A.G.; MIL'SHTEYN, T.N.;
GRINBERG, G.I.; ROMM, S.Z. (Leningrad - Moskva)

Most important problems in Soviet otorhinolaryngology; on the
research plan for the field of otorhinolaryngology during 1961-
1962, according to the Academy of Medical Sciences of the U.S.S.R.
Vest.otorin. 22 no.5:3-24 S-0 '60. (MIRA 13:11)
(OTOLARYNGOLOGY)

LIKACHEV, Andrey Gavrilovich, prof.; TIKHOMIROVA, G.I., red.; POGOSKINA,
M.V., tekhn. red.

[Diseases of the ear, nose, and throat] Bolezni ukha, gorla i
nosa. Izd.3., ispr. i dop. Moskva, Medgiz, 1961. 283 p.
(MIRA 15:1)

(OTORHYNOLARYNGOLOGY)

ABRAMYAN, A.Ya., prof.; BUSALOV, A.A., prof.; VELIKORETSKIY, A.N., prof.; GROZDOV, D.M., prof.; DORMIDONTOVA, K.V., dots.; ZHMAKIN, K.N., prof.; KORNEV, P.G.; LEVIT, V.S. prof. [deceased]; LIKHACHEV, A.G., prof.; LOBACHEV, S.V., prof.; MOLODAYA, Ye.K., prof.; PETROV, B.A.; PRIOROV, N.N. [deceased]; SALISHCHEV, V.E., prof. [deceased]; SAPOZHKOVS, P.I., prof. [deceased]; TERNOVSKIY, S.D. [deceased]; FAYERMAN, I.L., prof., zasl. deyatel' nauki; CHAKLIN, V.D.; CHENTSOV, A.G., prof. [deceased]; CHERNAVSKIY, V., prof.; SHADURSKIY, K.S., prof.; SHAKHBAZYAN, Ye.S., prof.; VELIKORETSKIY, A.N., prof.; red.; GORELIK, S.L., dots., red.; YELANSKIY, N.N., red.; STRUCHKOVA, V.I., red.; RYBUSHKIN, I.N., red.; BUL'DYAYEV, N.A., tekhn. red.

[Surgeon's manual in two volumes] Spravochnik khirurga v dvukh tomakh. Moskva, Medgiz. Vol.2. 1961. 642 p. (MIRA 17:4)

1. Chlen-korrespondent AMN SSSR (for Yelanskiy, Struchkova, Petrov, Ternovskiy, Chaklin). 2. Deystvitel'nyy chlen AMN SSSR (for Kornev, Priorov).

LIKACHEV, ANDREY G.

"Clinical and therapeutic aspects of malignant tumours of the
rhinopharynx."

report submitted for the Seventh Intl. Congress of Otorhinolaryngology,
Paris, 23-29 July 1961

Moscow, USSR

LIKHACHEV, A. G., zasluzhennyy deyatel' nauki, prof.; LEONENKO, P. M.,
zasluzhennyy vrach RSFSR; USOL'TSEV, N. N., prof.; SVETLAKOV, M. I.,
dotsent

Professor Ivan IAkovlevich Sendul'skii, Honored Scientist of the
R.S.F.S.R.; on his 80th birthday. Vest. otorin. no.3:3-5 '61.
(MIRA 14:12)

(SENDUL'SKII, IVAN IAkovlevich, 1881-)

LIKACHEV, A. G, prof., zasluzhennyuy deyatel' nauki RSFSR

New anesthetic methods in otorhinolaryngology. Vest. otorin.
(MIRA 15:2)
no.4:3-15 '61.

1. Iz kliniki bolezney ukha, nosa i gorla (dir. - zasluzhennyuy
deyatel' nauki prof. A. G. Likhachev) I Moskovskogo ordena Lenina
meditsinskogo instituta imeni I. M. Sechenova.

(OTOLARYNGOLOGY) (ANESTHESIA)

VOYACHEK, V. I.; KHILOV, K. L.; LIKHACHEV, A. G.; PIGULEVSKIY, D. A.

Professor Vil'gel'm Fomich Undrits; on the 70th anniversary of
his birth. Vest. otorin. no.1:3-6 '62. (MIRA 15:7)

(UNDRITS, VIL'GEL'M FOMICH, 1891-)

LIKACHEV, A.G., zasluzhenny deyatel' nauki, prof.; PREOBRAZHENSKIY, N.A.,
kand.med.nauk; RIMAN, I.B.

Anesthesia in operations on the stapes. Vest.otorin. no.3:43-
50 '62. (MIRA 16:3)

1. Iz kliniki bolezney ukha, gorla i nosa (dir. - zasluzhenny
deyatel' nauki prof. A.G. Likhachev) I Moskovskogo ordena Lenina
meditsinskogo instituta imeni I.M. Sechenova.
(TYMPANAL ORGAN--SURGERY) (OTOSCLEROSIS)
(LOCAL ANESTHESIA)

VOZNESENSKIY, A.N., prof.; VOL'FKOVICH, M.I., prof.; GESHELIN, A.I.,
prof.[deceased]; GORDYSHEVSKIY, T.I., prof.; YERMOLAYEV,
V.G., prof.; ZARITSKIY, L.A., prof.; KOTS, L.Ya., prof.;
LIKHACHEV, A.G., zasl. deyatel' nauki prof.; PROSKURYAKOV,
SHUL'GA, A.O., prof.; NEYMAN, L.V., prof., red.;
SHCHERBATOV, I.I., prof., red. doma; TIKHOMIROVA, G.I.,
red.; PREOBRAZHENSKIY, Yu.B., red.; CHULKOV, I.F., tekhn.red.

[Multivolume manual on otorhinolaryngology] Mnogotomnoe ruko-
vodstvo po otorinolaringologii. Otv. red. A.G.Likhachev. Mo-
skva, Medgiz. Vol.4. [Diseases of the upper respiratory
tract] Zabolevaniia verkhnikh dykhatel'nykh putei. Red. toma
L.V.Neiman. i I.I.Shcherbatov. 1963. 518 p. (MIRA 17:3)

1. Chlen-korrespondent AMN SSSR (for Likhachev).



BOBROVSKIY, N.A., prof., red.; VOL'FKOVICH, M.I., prof., red.;
VOL'FSO, Z.I., prof., red.; LIKHACHEV, A.G., prof., red.;
NEVSKIY, B.N., red.; PREOBRAZHENSKIY, B.S., prof., red.;
SAGALOVICH, B.M., doktor med. nauk, red.; SAKHAROV, P.P.,
prof., red.; UNDRITS, V.F., prof., red. [deceased]

[Transactions of the First All-Russian Congress of
Otorhinolaryngologists] Trudy pervogo Vserossiiskogo s"ezda
otorinolaringologov. Moskva, Medgiz, 1963. 318 p.

(MIRA 17:7)

1. Vserossiyskiy s"ezd otorinolaringologov. 1st. Volgograd,
1962.
2. Deystvitel'nyy chlen AMN SSSR (for Preobrazhenskiy).
3. Chlen-korrespondent AMN SSSR (for Undr'ts).
4. Glavnnyy
otorinolaringolog Ministerstva zdravookhraneniya RSFSR (for
Bobrovskiy).

LIKACHEV, A.G., prof., zasluzhennyj deyatel' nauki; PREOBRAZHENSKIY, N.A.,
doktor med.nauk

Report on the activity of the All-Union Scientific Medical Society
of Otorhinolaryngologists for 1962. Vest. otorin. 25 no.5:107-114
S-O '63. (MIRA 17x4)

1. Predsedatel' pravleniya Vsesoyuznogo nauchnogo meditsinskogo
obshchestva otorinolaringologov (for Likhachev). 2. Sekretar'
pravleniya Vsesoyuznogo nauchnogo meditsinskogo obshchestva
otorinolaringologov (for Preobrazhenskiy).

LIKACHEV, A.G., zasluzhennyy deyatel' nauki, prof.

Primary cancer of the frontal sinus. Vest. oto-rin. 25 no.4:
18-27 Jl-Ag '63. (MIRA 17:1)

1. Iz kliniki bolezney ukha, nosa i gorla (dir. - prof.
A.G. Likhachev) I Moskovskogo ordena Lenina meditsinskogo
instituta imeni I.M. Sechenova.

LIKACHEV, Andrey Gayrilovich, prof.; SKORODELOV, S.T., red.

[Diseases of the ear, throat and nose] Bolezni ucha,
gorla i nosa. Izd.4., ispr. i sokrashchennoe. Mo-
skva, Meditsina, 1965. 265 p. (MIRA 18:2)

9.9HJ

11186
S/169/62/000/009/115/120
D228/D307

AUTHOR: Likhachev, A. I.

TITLE: Annual variation and cyclic relationship of the relative increase of the F2-layer's critical frequencies

PERIODICAL: Referativnyy zhurnal, Geofizika, no. 9, 1962, 21, abstract 9G164 (Tr. Sibirs. fiz.-tekhn. in-ta pri Toms-kom un-te, no. 38, 1960, 34-37)

TEXT: The concept of the relative diurnal increase of critical frequencies in the F2-layer is introduced. It is shown that the close relation between the sun's zenith angle and the relative increase of ionization in the F2-layer during the year can be defined by the expression: $f_{oF2\max}/f_{oF2\min} = B \sin Z_n$, where the amplitude of B is a function of the solar activity state in the 11-year cycle. The presence of the phenomenon of the limitation of the ionization increase at the crest of the F2-layer is disclosed. It is due to increased solar activity. [Abstracter's note: Complete translation.]

Card 1/1

9.910

41167
S/169/62/000/009/116/120
D228/D307

AUTHORS: Likhachev, A. I. and Potapova, N. I.

TITLE: Latitudinal relationship of the diurnal ionization increase in the F2-layer

PERIODICAL: Referativnyy zhurnal, Geofizika, no. 9, 1962, 21, abstract 9G165 (Tr. Sibirs. fiz.-tekhn. in-ta pri Toms-kom un-te, no. 38, 1960, 38-46)

TEXT: The diurnal ionization increase in the F2-layer from the morning minimum to the noon maximum is calculated from the data of measurements at 40 stations, which carried out vertical ionospheric sounding. It is shown that the increase's variation during the year proceeds in accordance with the change in the sine of the sun's zenith angle. The latitudinal distribution of the increase in the southern hemisphere is the mirror image of that in the northern (relative to the magnetic equator and the solstice periods). It is shown that in periods of the equinox the increase's latitudinal distribution is close to the cosine of the local latitude. In sol-

Card 1/2

Latitudinal relationship of ...

S/169/62/000/009/116/120
D228/D307

stice periods in the winter hemisphere the increase's distribution is defined by the cosine of the angle $\varphi + \delta$, where φ is the local latitude and δ is the sun's declination. [Abstracter's note: Complete translation.]

Card 2/2

S/058/62/000/008/118/134
A160/A101

9.9810

AUTHOR: Likhachev, A. I.

TITLE: Long-term forecasting of the maximum and minimum critical frequencies of the F₂ layer

PERIODICAL: Referativnyy zhurnal, Fizika, no. 8, 1962, 31, abstract 8Zh223
("Tr. Sibirs. fiz.-tekhn. in-ta pri Tomskom un-te", no. 38, 1960,
47 - 56)

TEXT: Presented is a method of determining the minimum and maximum median values of the critical frequencies for the given point according to data of forecasting the solar activity. The method is based on an investigation carried out on the correlation of median values of the critical frequencies at mid-day and morning hours, on the determination of the regularity of a relation change depending on the solar activity; and also on an investigation on the behavior in relation to the solar activity and the zenith angle of the solar component of the ionization of the F₂ layer. Presented is an example of forecasting for the point Tomsk. Forecasting data are compared with experimental data

VB

Card 1/2

Long-term forecasting of...
for the 18th cycle of the solar activity.
[Abstracter's note: Complete translation]

S/058/62/000/008/118/134
A160/A101

VB

Card 2/2

3.91/0

S/169/62/000/009/118/120
D228/D307

AUTHORS: Gordeyev, O. K., Kovalevskiy, A. F. and Likhachev, A. I.

TITLE: Relation of solar diurnal variations on quiet days to
the sun's zenith angle

PERIODICAL: Referativnyy zhurnal, Geofizika, no. 9, 1962, 32, ab-
stract 9G232 (Tr. Sibirs. fiz.-tekhn. in-ta pri Toms-
kom un-te, no. 38, 1960, 57-60)

TEXT: The authors consider the changes in the amplitudes of the
geomagnetic field elements H, D, and Z in relation to the variation
of the sun's zenith angle during the year. They state their views
on the daily magnetic declination curve and on the differential
curve of the square of the cosine of the sun's zenith angle. [Abstracter's note: Complete translation.] ✓B

Card 1/1

9.910

S/169/62/000/008/078/090
E032/E114

AUTHOR: Likhachev, A. I.

TITLE: Latitude distribution of the minimum critical frequencies of the diurnal variation of the F2-layer

PERIODICAL: Referativnyy zhurnal, Geofizika, no.8, 1962, 24,
abstract 8 G 176. (Tr. Sibirs. fiz.-tekhn. in-ta pri Tomskom un-te, no.38, 1960, 87-89).

TEXT: The ionospheric data of 40 stations all over the world for 1958 were used to determine the median minimum critical frequencies of the diurnal variation of the F2-layer. A chart showing the latitude distribution of the critical frequencies is reproduced. It is shown that the distribution in the northern hemisphere is a reflection of the distribution in the southern hemisphere with respect to the magnetic equator. During the winter solstice the minimum critical frequency decreased to 3-4 Mc/sec at all latitudes right up to 15°. ✓

[Abstractor's note: Complete translation.]

Card 1/1

LIKHACHEV, A. I.

Adaptive morphofunctional peculiarities in the organs of locomotion of
the elk [with English summary in insert]. Zool. zhur. 35 no.3:445-458
Mr '56. (MIRA 9:7)

1. Kafedra anatomii Novosibirskogo sel'skokhozyastvennogo instituta.
(Elk)

LIKHACHEV, A.I., kandidat biologicheskikh nauk.

Economic utilization of elks. Priroda 45 no.9:108-109 S '56.
(MLRA 9:10)

1. Novosibirskiy sel'skokhozyaystvennyy institut.
(Siberia--Elk)

LIKHACHEV, A.I., Doc Biol Sci -- (diss) "Morphological studies ^{recognition} of the biology and productivity of elks as ruminants." Kazan', 1959, 26 pp (Min of Agr USSR. Kazan' Vet Inst im N.E. Bauman) 150 copies. List of author's ^{writing} (pp 25-26 (23 titles) (KL, 28-59, 124)

- 32 -

3.9000

78020

SOV/33-37-1-20/31

AUTHOR:

Likhachev, A. I.

TITLE:

The Variation of the Luminous Ionization Component of the
F2 Layer During the First Half of the Day

PERIODICAL:

Astronomicheskiy zhurnal, 1960, Vol 37, Nr 1,
pp 135-139 (USSR)

ABSTRACT:

The first paper on this subject was published by the author in 1954. Here, he finds a definite increase in the critical frequencies of the F2 layer between the morning hours and noon. This difference, which he

designates as $f^o F_2$, was measured during the I.G.Y. from July 1957 to December 1958 at the Tomsk Ionospheric Station of the Siberian Physico-Technical Institute.

He finds that $f^o F_2$ varied from 1.4 (June 1958) to 10.9 (December 1957). The variation follows very closely that of $\sin z$, where z is the zenith distance of

Card 1/2

The Variation of the Luminous Ionization Component of the F2 Layer During the First Half of the Day

78020
SOV/33-37-1-20/31

the sun at noon for the latitude of Tomsk. The f^0_{F2} values are compared with the Wolf sunspot numbers for 1942 to 1952 and are found to be definitely correlated with solar activity. However, this is not very pronounced in the summer months. The parameter f^0_{F2} may be used for predicting the solar behaviour and the critical frequencies for long intervals of time. There are 4 tables; 4 figures; and 1 Soviet reference.

ASSOCIATION:

Siberian Physico-Technical Institute at the Kuybyshev State University at Tomsk (Sibirskiy fiziko-tehnicheskiy institut pri Tomskom gosudarstvennom universitete imeni V. V. Kuybysheva)

SUBMITTED:

June 6, 1959

Card 2/2

G.P.O.
S/194/62/000/008/078/100
D271/D308

AUTHOR: Likhachev, A.I.

TITLE: Long term prediction of maximal and minimal critical frequencies of the F₂ layer

PERIODICAL: Referativnyy zhurnal. Avtomatika i radioelektronika, no. 8, 1962, 31-32, abstract 8Zh 223, (Tr. Sibirsk. fiz.-tekhn. in-ta pri Tomskom un-te, 1960, no. 38, 47 - 56)

TEXT: A method is presented for determining minimal and maximal median values of critical frequency for a given point, from predicted data of solar activity; the method is based on the study of the relationship between median values of critical frequency at midday and in the morning, and on the established regularity of the variation of this relation dependent on solar activity, as well as on the study of behavior of the solar component of F₂ ionization in function of solar activity and zenith angle. An example of prediction for Tomsk is given and predicted data are compared with experimental data for the 18th cycle of solar activity. [Abstracter's note: Complete translation.]

VB

9.9.22

43026

S/194/62/000/010/057/084
A061/A126

AUTHOR: Likhachev, A.I.

TITLE: Disturbances of the cyclic character of the F₂ layer ionization [Abstracter's note: "R₂" in the original title is evidently a printing error]

PERIODICAL: Referativnyy zhurnal, Avtomatika i radioelektronika, no. 10, 1962, 26 - 27, abstract 10-7-52y (Tr. Sibirsk. fiz.-tekhn. in-ta pri Tomskom un-te, 1960, no. 38, 63 - 68)

TEXT: Based on observations of F₂-layer ionization conducted by the Tomsk ionospheric station over a number of years, data are given of the disturbance of the cyclic function of the layer ionization. From observations of the daily increment of the F₂-layer ionization, from investigations of the change in magnitude of the increment of critical frequencies in the period from evening minimum to evening maximum, and from changes in the minimum critical frequencies in the course of a number of years, the conclusion is reached that the principal cause for the disturbance of the cyclic character is the change of atmospheric tempera-

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Disturbances of the cyclic character of the
ture. There are 9 references.

S/194/62/000/010/057/084
A061/A126

[Abstracter's note: Complete translation]

V.O.

Card 2/2

42832

9.9.30

AUTHOR:

S/169/62/000/010/066/071
D228/D307Likhachev, A.I.

TITLE:

Time boundaries for the manifestation of thermal
processes in the diurnal variation of ionization
of the F2 layer

PERIODICAL:

Referativnyy zhurnal, Geofizika, no. 10, 1962, 29,
abstract 10G215 (Tr. Sibirs. fiz.-tekhn. in-ta pri
Tomskom un-te, no. 38, 1960, 83-86)

TEXT:

The yearly variation of critical frequencies of the F2 (f_o) layer has a different character at different hours. In the daytime an anomalous reduction is clearly displayed in summer. For the late evening, the night, and the early morning the maximum of diurnal variation is observed in June. If the anomalies of the annual and diurnal f_oF2 variations are reckoned to be caused in summer by the heat effect of solar radiation, the time boundaries of the action of thermal processes can be ascertained by basing the determination on the moments of transition from one type of annual f_oF2

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Time boundaries ...

S/169/62/000/010/066/071
D228/D307

variation to another. From diagrams of the yearly f_0F2 variation at different hours the author determined the points corresponding to the change from one form of regularity to another. According to the corresponding f_0F2 values the moments of time were then read off on diagrams of the diurnal f_0F2 variation. The boundaries of action of thermal processes for 1956, 1957 and 1958 were thus determined from the data of the Tomsk ionospheric station. Comparison of the contours of the boundaries under consideration (in the coordinates hours of the day-time of the year) shows that they change slightly from year to year. This allows it to be supposed that the thermal processes responsible for the anomalies are above all determined by the sun's zenith angle. The stretching of the contours in summer also indicates a dependence on the duration of illumination of the F2 layer.

[Abstracter's note: Complete translation]

Card 2/2

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43159
S/203/62/002/003/009/021
I023/I250

AUTHOR: Likhachev, A.J.

TITLE: Dependence of the F2-layer ionization on the inflow of solar energy into the atmosphere

PERIODICAL: Geomagnetizm i Aeronomiya, v.2, no.3, 1962, 481-488

TEXT: Assuming that the main source of ionization in the F2 layer is the ultraviolet radiation from the Sun, the electron density should be proportional to the cosine of the Sun's zenith angle. Experimental results do not confirm this relationship. The differences can be explained by heat processes in the upper atmosphere. The problems considered in the article are 1) variation of the ionization in the F2 layer with the Sun's zenith angle and 2) deviations from the dependence of ionization in F2 on lighting with the inflow of solar energy into the atmosphere. In dealing with the first problem a new parameter of a daily component of ionization is introduced

$$f_0F2 \sim = f_0F2_{\max} - f_0F2_{\min}$$

A good correlation of the yearly course of $f_0F2 \sim$ with the sine of Card 1/3

S/203/62/002/003/009/021
I023/I250

Dependence of the F2-layer...

the zenith angle was obtained for the latitude of Tomsk. Stations in the belts between 20 and 65° N and S gave also a good correlation. In the polar zone the variation is observed only during the half year of light. In the equatorial zone the results are much worse since the Sun passes through zenith twice a year and thus the dependence is much more complex. Daily increment of the electron density in the layer F2 proved linearly dependent on the inflow of solar energy into the atmosphere. The rate of increase of the electron density varies with the latitude, being lower at higher latitudes. In the winter months the heat effects are small, and the critical frequencies of the F2 layer can be calculated from the theory of a simple layer. The incoming solar energy in the course of a year correlates very well with the difference between the calculated and observed critical frequencies. The correlation between the incoming solar energy and the yearly anomaly of the F2 layer at the Moscow and Sverdlovsk stations is good, at the Alma-Ata and Ashkhabad stations much worse, which can be explained by appreciable temperature

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